

Overview of the California Greenhouse Gas Offsets Program¹

Background Paper for the EPRI Greenhouse Gas Emissions Offset Policy Dialogue Workshop #10

April 2011

I. Background

This paper has been prepared for a workshop to be held by the Electric Power Research Institute (EPRI) on April 7, 2011 in San Francisco, California (CA). It is the tenth in a series of workshops sponsored by EPRI between 2008 and 2011 related to greenhouse gas (GHG) emissions offsets.

The purpose of this paper is to provide background for workshop discussions on key design elements of CA's newly adopted offsets program and related implementation and market issues. The paper briefly covers the following topics:

- Overview of CA's new GHG cap-and-trade program;
- Status of cap-and-trade regulations, outstanding electricity sector issues, and next steps;
- Eligible offset protocols, early action offsets, international offsets from "sectoral" programs, and offset credits from Western Climate Initiative (WCI) partner jurisdictions;
- Quantitative limit on use of offsets for compliance;
- Estimates of offset supply, offset limits, and system-wide emissions-to-cap shortfalls;
- Crediting periods;
- Additionality;
- Offset project approval process (including listing, monitoring and reporting, verification, and issuance);
- Role of Offset Project Registries;
- Special provisions related to forest carbon sequestration projects;
- User (aka "buyer") liability; and,
- Enforcement and penalties.

II. Overview of California's New GHG Cap-and-Trade Program

A. Brief overview of GHG cap-and-trade program

California's GHG cap-and-trade program – the nation's most comprehensive GHG cap-and-trade program at the state level – is scheduled to come into effect on January 1, 2012. The program will cover GHG emissions from the electricity sector (including imports) and from large industrial facilities with emissions greater than 25,000 metric tons carbon dioxide-equivalent (MtCO₂e) in 2012, or approximately 37% of CA's GHG emissions. In 2015, the program's

¹ Prepared by Rob Youngman of Natsource Advisory and Research Services and Adam Diamant of the Electric Power Research Institute (EPRI). Copyright © 2011 Electric Power Research Institute, Inc. All rights reserved.

coverage will expand to cover approximately 85% of emissions by adding distributors of transportation fuels, natural gas and other fuels.

The program is the cornerstone of CA's approach to reduce its state-wide GHG emissions to 1990 levels by 2020, as required under AB-32, the California Global Warming Solutions Act of 2006, and as further elaborated under the final "Scoping Plan" adopted in December 2008. AB32 requires the California Air Resources Board (ARB) to implement a regulatory program to achieve the GHG reduction goals of AB-32, and to make recommendations to the Governor and the state legislature regarding potential GHG targets beyond 2020. Such recommendations may take into account former Governor Schwarzenegger's Executive Order S-3-05, which established a state-wide GHG target of 80% below 1990 levels by 2050.²

Some of the key elements of the GHG cap-and-trade program briefly are described below.³

- **Gases:** The program covers carbon dioxide (CO₂), methane (CH₄), hydrofluorocarbons (HFCs), nitrous oxide (N₂O), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
- **Compliance and penalties:** On an annual basis, covered entities must surrender compliance instruments (allowances or offsets) equal to a minimum of 30% of their previous year's emissions. Every three years, a triennial compliance true-up is held that requires covered entities to surrender compliance instruments to cover their emissions for that period, minus the annual compliance amounts already submitted. The program includes three triennial compliance periods (CP1: 2012-14, CP2: 2015-17, CP3: 2018-20). If an entity fails to cover all of its emissions during a compliance period, it must surrender four allowances for every ton of excess emissions and may face other penalties.
- **Covered entities:** By 2015, the program will cover more than 80% of the CA economy, including 350 businesses and 600 facilities.
- **Emissions cap:** The initial cap in 2012 is set equal to forecasted emissions for that year. It declines ~2% per year between 2012 and 2014, and declines ~3% per year after 2015. The 2020 cap is set approximately 15% below 2012 levels.
- **Emission reductions:** The program is designed to achieve 273 MtCO₂e of cumulative emission reductions in the 2012-20 period.
- **Allocations:** Electric utility customers and industries vulnerable to competition outside of CA will receive free allowances. Free allowances will comprise 95% of the total emissions cap in 2012, and will decline to 42% of the cap in 2020. Allocations to industrial sources will start at approximately 90%, be based on efficiency benchmarks and be updated annually based on product output. Electricity consumers will start with an allocation of approximately 90% of average electric sector emissions calculated based on recent data.
- **When will the program be "short"?** Depending upon the extent to which CA's Renewable Electricity Standard is achieved (the standard increases the proportion of electricity sales that must come from renewables from 20% in 2010 to 33% in 2020), emissions under the cap-and-trade program are estimated to exceed the cap as early as

² <http://gov.ca.gov/news.php?id=1861>

³ See fact sheet at http://www.arb.ca.gov/cc/factsheets/emissions_trading_program.pdf and proposed regulations.

2015 (under a scenario in which only 50% of the renewable target is achieved) or as late as 2017 (in a 100% achievement case).⁴

- **First Deliverer Approach:** To address emissions associated with imported electricity, the first responsible party to place imported power on the CA grid is treated as the point of regulation for these emissions.
- **Requirements for Covered Entities:** Covered entities must register with ARB, report GHG emissions annually, acquire compliance instruments (allowance and/or offsets) equivalent to emissions, surrender compliance instruments to match emissions at the end of each compliance period, and comply with record-keeping, market rules, verification and other requirements.
- **Holding Limits:** The program allows for unlimited trading and banking, but holding limits set a maximum amount of all compliance instruments an entity may hold. Each entity has an exemption from the holding limit for allowances placed in their Compliance Accounts up to the amount of their most recent year's verified emissions.
- **Strategic Reserve:** As a cost-containment measure, approximately 4% of allowances is set-aside in a strategic reserve, which makes a portion of its allowances available only to covered entities for purchase at fixed prices that increase over time (\$40-50/tCO₂e in 2012 growing to \$60-75/tCO₂e in 2020).
- **Offsets:** Offsets may be used for up to 8% of a covered entity's compliance obligation. Four initial offset protocols are approved for use in the program, and more are expected to be considered for approval. Qualifying "early action" credits and offset credits from linked programs (e.g., WCI partner programs) may also be used for compliance. The program also includes a framework to include international offsets from "sectoral" programs within regions, with an initial focus on Reduced Emissions from Deforestation and Degradation (REDD)-based offsets that preserve tropical forests. Other project-based offset mechanisms such as the Clean Development Mechanism (CDM) could be recognized in the future, but are not included now.
- **Linkage:** The program includes a framework to link to WCI partners. At present, all U.S. WCI partner states other than CA and New Mexico⁵ have at least temporarily dropped out of the program. British Columbia, Ontario, Quebec and Manitoba are moving forward to develop GHG cap-and-trade programs and to participate in WCI, although deliberations and implementation in these jurisdictions are at different stages, and there is still the potential for one or more to drop out of the WCI.
- **Registry:** ARB staff indicates that the registry system for cap-and-trade compliance instruments is designed to provide strong enforcement capabilities, including mechanisms to prevent double-counting, public disclosure requirements, and methods to clearly define ownership.
- **Mandatory Reporting Regulation Revisions:** A separate regulatory package revises CA's GHG reporting rules to make them consistent with U.S. Environmental Protection Agency (EPA) rules.

⁴ Barclays Capital, Commodities Research, "I wish they all could be California," February 2, 2011, p.13, Figure 16.

⁵ The new Governor of New Mexico, Susana Martinez, opposes implementation of GHG regulations approved by New Mexico's Environmental Improvement Board (EIB) last December, but her efforts to delay or prevent implementation currently face legal challenge.

B. Status of regulations and outstanding electric sector issues

On October 28, 2010, ARB released a “staff report” describing its proposed cap-and-trade regulations and initiated a 45-day public comment period.⁶ At a Board hearing on December 16, 2010, ARB endorsed the proposed regulations and issued resolutions on next steps. On February 23, 2011, ARB posted to its website its proposed regulations, the Board’s resolutions from the December hearing, and a number of additional documents relating to the cap-and-trade program and its associated GHG offsets program. In its resolutions, the Board called for public workshops to be held on a number of outstanding issues, including:⁷

- Offset protocols in addition to the four protocols included in the draft regulation (workshops scheduled to be held through spring 2011);
- Electricity sector issues, including reporting requirements, voluntary renewable energy, and long-term electricity contracts (workshops scheduled through spring 2011);
- Electricity sector allocations (workshops scheduled through spring 2011);
- Program management, including holding and purchase limits, auction design, market oversight and penalties (workshops scheduled through spring 2011); and,
- WCI linkage (workshops scheduled to be held in early summer 2011).

In a document separate from the proposed regulations, ARB staff provided suggested modifications to the regulations. These modifications are designed to clarify the list of emitting activities that do not have a compliance obligation, including changes that may set the stage for ARB to consider for potential inclusion in the offset program offset protocols for projects that capture and destroy or use biogas from landfills and wastewater treatment plants.⁸ There also is a proposed modification to the quantitative limit on the use of offsets for compliance. This proposed change is described in Section IV below.

The regulation is expected to be finalized in three more steps. The first “regulation change notice package” or “15-day changes” is scheduled to be released for public comment in late spring, and the second package is scheduled to be released for public comment in mid-summer. Final regulations are expected to be issued by October 2011. However, these deadlines may be affected by a recent court decision, as discussed below.

One key issue that has not yet been decided is the method to be used to allocate allowances to the electricity sector. The staff report recommends electricity customers receive an allocation in 2012 equal to 90% of 2008 emissions; allocations would then decline linearly to 85% of 2008 emissions by 2020. Utilities that receive free allowances are required to auction them on a consignment basis in quarterly ARB auctions or, for publicly-owned utilities, to transfer them to their Compliance Account. The economic value of these allowances must be used solely for the benefit of retail ratepayers (i.e., for rebates, customer bill relief, or to pay for GHG reduction measures such as energy efficiency, renewable electricity generation, or other similar programs).

⁶ Regulatory documents are posted at <http://www.arb.ca.gov/regact/2010/capandtrade10/capandtrade10.htm>. These include the proposed regulation (i.e. the “proposed regulation order”) at <http://www.arb.ca.gov/regact/2010/capandtrade10/capv1appa.pdf>; the staff report (“Staff Report: Initial Statement of Reasons (ISOR)”) at <http://www.arb.ca.gov/regact/2010/capandtrade10/capisor.pdf>; the resolution adopted by ARB at a Board hearing on December 16, 2010; ARB staff’s recommended (but not yet adopted) changes to the proposed regulation, at <http://www.arb.ca.gov/regact/2010/capandtrade10/res1042attB.pdf>; and other documents.

⁷ Program Activities, <http://www.arb.ca.gov/cc/capandtrade/capandtrade/programactivities.pdf>

⁸ Attachment B, Staff’s Suggested Modifications to the Original Proposal, <http://www.arb.ca.gov/regact/2010/capandtrade10/res1042attB.pdf>

Electricity generating companies that do not receive free allowances (i.e., investor-owned utilities and independent power producers) must purchase allowances to cover their emissions.

The staff report also notes that “[a]pproaches that have been recommended by stakeholders, the CA Public Utilities Commission (CPUC) and the CA Energy Commission (CEC) have suggested balancing historical emissions with electricity sales to allocate allowances.”⁹ However, ARB staff has not been able yet to identify an allocation method based on historical emissions and sales that “provides appropriate incentives for emissions reductions and is considered affordable and effective for all utilities.”¹⁰ ARB staff is recommending that the allocation method take into account the following considerations – ratepayer cost burden, energy efficiency performance, and early action as measured by investments in qualifying renewable resources.¹¹ Related details on allocation and other electricity sector issues, such as long-term contracts, will be taken up in at least one public workshop and in revisions to the cap-and-trade regulation.

The ARB has directed its Executive Officer (EO) to address a number of other issues of particular relevance to the electric sector, including establishing a set-aside for voluntary renewable energy, and initiating public processes to: (i) quantify emission reductions that result from voluntary renewable energy projects; (ii) review additional offset protocols to expedite their consideration by the Board; and, (iii) establish a protocol for geological carbon capture and storage (CCS) and recommendations on the treatment of CCS under the cap-and-trade program.¹² The EO also must provide an update to the Board by July 31 regarding expected timing of Board consideration of linking with WCI partner programs, implementation of an offset tracking system, information on any voluntary offset registries interested in becoming third-party registries under the cap-and-trade regulation, review of additional offset protocols and the expected schedule for bringing them to the Board for consideration, and estimates of offset supply based on the four approved protocols and additional ones brought to Board for review.¹³ As noted above, the timetable for finalizing the proposed regulation may be affected by a recent court case.

On March 18, the Superior Court of CA, County of San Francisco, issued a decision in a challenge to CA’s implementation of AB-32. The challenge was initiated by environmental justice advocates with concerns that the cap-and-trade program would increase air pollution in some areas of the state.¹⁴ The Court concluded that ARB did not conduct an adequate environmental review process pursuant to the CA Environmental Quality Act (CEQA), failed to

⁹Appendix 1: Staff Proposal for 15-day Changes to Address Electricity Sector Allowance Allocation, <http://www.arb.ca.gov/regact/2010/capandtrade10/res1042app1.pdf>

¹⁰ Ibid. Additional details on discussions with stakeholders on allocation approaches are provided in this document.

¹¹ With respect to ratepayer cost burden, ARB staff note that “the allowance allocation can be designed with the goal of ensuring that the each utility’s allowance allocation is sufficient to offset the ratepayer cost burden for the ratepayers.” Ibid.

¹² ARB, California Cap-and-Trade Program, Resolution 10-42, December 18, 2010, Agenda Item 10-11-1, <http://www.arb.ca.gov/regact/2010/capandtrade10/res1042.pdf>

¹³ Ibid.

¹⁴ “Court issues final ruling in AB 32 challenge — enjoins implementation of AB 32 scoping plan pending CEQA fixes,” Legal Planet -- the Environmental Law and Policy Blog, Berkeley Law/UCLA Law, accessed March 21, 2011, <http://legalplanet.wordpress.com/2011/03/21/court-issues-final-ruling-in-ab-32-challenge-enjoins-implementation-of-ab-32-scoping-plan-pending-ceqa-fixes/>. The Court’s ruling is available at <http://cdn.law.ucla.edu/SiteCollectionDocuments/Environmental%20Law/Court%27s%20Final%20Order%203%2017%2011.pdf>.

adequately consider alternative implementation measures such as a direct carbon tax, and should not have begun implementing the Scoping Plan measures before its CEQA review process was complete. In its decision, the Court forbade any further implementation of measures contained in the AB-32 Scoping Plan, and any further rulemaking, until the state complies with CEQA. It remains to be seen whether the court decision will delay the final rulemaking (currently scheduled for October 2011) and the start of the cap-and-trade program in January 2012.

III. Eligible Offset Protocols, Early Action, International Offsets, and Links to WCI

A. Eligible offset protocols¹⁵

The proposed regulation includes four “compliance offset protocols” that may be used to create eligible offset credits under the program, including:

- Livestock manure (digester) project protocol;¹⁶
- U.S. ozone depleting substances (ODS) projects protocol;¹⁷
- U.S. forest projects protocol;¹⁸ and,
- Urban forest projects protocol.¹⁹

These offset protocols apply to projects located in the United States. These and/or other protocols eventually may apply to projects located across all of North America, including in the U.S., Canada and Mexico. They all are based on (but not identical to) protocols developed by the Climate Action Reserve (CAR), which were taken through a public review process and modified to meet criteria in AB-32 and the proposed cap-and-trade regulation. ARB also coordinated with WCI partners, which reviewed and approved all of the protocols except the ODS protocol, which currently is under WCI review.

¹⁵ Unless otherwise noted, information on the proposed regulation in the remainder of this paper is sourced from the proposed regulation itself and the accompanying staff report.

¹⁶ This protocol is based on the Climate Action Reserve’s (CAR) Livestock Project Protocol version 2.2, and includes the project boundary updates proposed in CAR’s draft version 3.0. California Environmental Protection Agency, Air Resources Board, “Proposed Regulation to Implement the California Cap-and-Trade Program, Part IV, Staff Report and Compliance Offset Protocol: Livestock Manure (Digester) Projects,” <http://www.arb.ca.gov/regact/2010/capandtrade10/cappt4.pdf>.

¹⁷ This protocol is based on CAR’s Ozone Depleting Substances Protocol Version 1.0 and includes the information provided in CAR’s Errata and Clarification (see <http://www.climateactionreserve.org/how/protocols/adopted/ods/current/>). California Environmental Protection Agency, Air Resources Board, “Proposed Regulation to Implement the California Cap-and-Trade Program, Part III, Staff Report and Compliance Offset Protocol: U.S. Ozone Depleting Substances Projects,” <http://www.arb.ca.gov/regact/2010/capandtrade10/cappt3.pdf>.

¹⁸ This protocol is based on CAR’s Forest Protocol, version 3.2, and is applicable to projects in the U.S., excluding Improved Forest Management projects in Hawaii and Alaska. California Environmental Protection Agency, Air Resources Board, “Proposed Regulation to Implement the California Cap-and-Trade Program, Part V, Staff Report and Compliance Offset Protocol: U.S. Forest Projects,” <http://www.arb.ca.gov/regact/2010/capandtrade10/cappt5.pdf>.

¹⁹ This protocol is based on based on CAR’s Urban Forest Project Protocol, version 1.1. California Environmental Protection Agency, Air Resources Board, “Proposed Regulation to Implement the California Cap-and-Trade Program, Part II, Staff Report and Compliance Offset Protocol: Urban Forest Projects,” <http://www.arb.ca.gov/regact/2010/capandtrade10/cappt2.pdf>.

To streamline the calculation of emissions baselines, the protocols all include standardized methods for quantifying emission reductions. They also include standard eligibility criteria to simplify additionality determinations, and project-type specific monitoring and reporting requirements, and methods for addressing leakage.

The regulation requires protocols to accurately determine GHG reductions/removal enhancements achieved; establish a project baseline reflecting a conservative estimate of business-as-usual (BAU) performance or practices; account for leakage; account for uncertainty in quantification factors; ensure reductions are permanent; include a mechanism to ensure permanence of removal enhancements for sequestration projects; and establish the length of the crediting period – from 7 to 10 years for non-sequestration projects, and from 10 to 30 years for sequestration projects. With respect to uncertainty, the staff report states that a principle of conservativeness is employed in the quantification of emission reductions to ensure emission reductions will be underestimated rather than overestimated when there is a high level of uncertainty.

Requirements for a project using these protocols include the following: the reduction/removal enhancement must not be required by law, regulation or any legally binding mandate; the project's commencement date must occur after December 31, 2006; the reductions would not have occurred under a conservative BAU scenario, and must exceed the baseline calculated in the protocol; and the project must fulfill all local, regional and national requirements with respect to environmental impact assessments.

According to the staff report, ARB staff plans to review and adopt additional offset protocols, including those prepared by third parties, in the future. These potentially could include protocols for activities such as landfill gas emission reductions, N₂O destruction, and agricultural soil management to reduce N₂O emissions. The International Emissions Trading Association (IETA) also is encouraging ARB to include carbon capture and storage (CCS) as an eligible offset category. In March 2011, ARB Chairman Mary Nichols was quoted saying that ARB is particularly interested in protocols that would benefit the agricultural sector, and that protocols “related to nitrogen fertilizer and cultivation practices in the rice industry and a couple others... have been quite well vetted.”²⁰

B. Early action

Under the proposed ARB regulations, qualifying “early action offset credits” that may be used for compliance may be created by projects using the following CAR protocols:

- CAR Livestock Protocol versions 1.0 through 3.0;
- CAR Urban Forestry Protocol versions 1.0 through 1.1;
- CAR Ozone Depleting Substances Protocol version 1.0; and,
- CAR Forestry Protocol version 2.1, or CAR Forestry Protocol versions 3.0 through 3.2, if the offset project has a conservation easement or has contributed offset credits based on its reversal risk to an insurance buffer account.

Unlike the compliance offset protocols discussed above, these eligible early action protocols are CAR protocols and have not been modified. It is expected that most early action credits will

²⁰ Point Carbon, “California likely to let in more offset types: official,” March 14, 2011 (updated March 18, 2011), www.pointcarbon.com (subscription required).

come from forest carbon projects and agriculture methane (i.e., livestock) projects. Over the longer term, it is expected that ODS-based offsets will provide most of the offset credits created under the four ARB approved offset protocols.

To encourage early action to reduce emissions, these protocols were adopted by ARB sequentially over the 2007-10 period. Offset credits from projects using these protocols, and that are registered with third-party offset programs (such as CAR), may be accepted as early action offset credits if reductions: (i) occurred between the beginning of 2005 and the end of 2014; (ii) meet all requirements for verification of early action offset credits and conflict of interest in the proposed regulations; (iii) are located in the U.S.; and, (iv) have not been retired, canceled, or used to meet a voluntary commitment or a surrender obligation in any voluntary or regulatory system. In addition, the offset project must have begun prior to 2012.

Third-party offset programs that seek to provide qualifying offset credits for early action must meet a number of requirements similar to those pertaining to approved Offset Project Registries (see discussion in Section IX). They also must agree to retire credits when they are used in the CA cap-and-trade program or any other program. It remains to be seen whether ARB will accept other protocols to be used for “early action,” including protocols from other offset programs such as the Verified Carbon Standard (VCS) Program and the American Carbon Registry (ACR).

C. *International sector-based offset credits*

The proposed regulation includes a framework to accept for compliance “sector-based” offset credits developed in developing countries in the future. ARB staff expects the framework will create an incentive for developing countries to develop programs capable of meeting CA’s sector-based offset credit requirements. Staff also expect that REDD sector-based crediting programs will be the first to be approved under CA’s cap-and-trade program, and that credits from such a program could be used starting in 2015. In addition, ARB will consider whether pilot activities in certain jurisdictions could be considered for approval prior to 2015.

Under such a program, the host jurisdiction (which may be a sub-national jurisdiction like a state or province) would establish: (i) a plan for reducing emissions from a sector or sequestering carbon; (ii), a transparent system to monitor, inventory, report, verify and maintain accounting for emission reductions across the sector; (iii) requirements to ensure offset credits generated by the program are real, additional, quantifiable, permanent, verifiable and enforceable; (iv) a transparent system to determine and report when it meets or exceeds its crediting baseline, and to evaluate sector-level performance relative to reference-level emissions; and, (v) a means for public participation and consultation in the program design process.

Eligible sectoral offset programs also must maintain enforcement capability over the activity that produces offset credits. As noted in the staff report, the crediting baselines would be below the reference-level baseline, and would be achieved through policies and actions taken by the jurisdiction. Only emission reductions *below* the crediting baseline would be eligible to create sector-based credits. Programs that plan to use a “nested approach” and allow for crediting of project-level activities within a sectoral program must include: (i) required methods for projects to inventory, quantify, monitor, verify, enforce, and account for all project-level activities; and, (ii) a system for reconciling project-based reductions with sector-level accounting.

With respect to REDD programs, ARB staff will continue its work with the Governors’ Climate and Forests Task Force (GCF) and experts and stakeholders to refine guidance for a sub-national

REDD program.²¹ The GCF is a consortium of states and provinces aimed at establishing compliance-quality REDD-based offset credits and a REDD-based offsets market. CA also is continuing its work with the International Carbon Action Partnership (ICAP), a consortium of states and countries pursuing the development of carbon markets. To date, CA has signed Memoranda of Understanding (MOUs) with Chiapas, Mexico and Acre, Brazil to establish sub-national REDD programs.²² As noted above, ARB expects to approve a REDD sector-based crediting programs prior to 2015. ARB would need to provide public notice and opportunity for public comment before approving any REDD or sector-based crediting program.

With respect to sector-based crediting programs other than REDD programs, ARB staff indicates it will consider such factors as the significance of the sector's share of the host jurisdiction's GHG emissions and its opportunities for emission reductions; the robustness of the jurisdiction's emissions monitoring, reporting and verification; whether it has a strategy to achieve domestic emission reductions other than those resulting from an offset program; whether it provides for public participation and consultation in the program design process; and, the homogeneity of the sector with respect to products, production processes, and concentration of firms.

As discussed in Section IV on offset limits, ARB staff recommends a modification to the proposed regulation which would limit regulated entities' use of sector-based offset credits to 25% of their compliance obligation during the first compliance period, and 50% during all other compliance periods.

D. Offset credits from WCI partner jurisdictions

Offset credits issued by linked programs, such as those of WCI partner jurisdictions, are eligible for use in CA's cap-and-trade program. As noted earlier, there are still many uncertainties regarding which jurisdictions ultimately may participate in a WCI regional cap-and-trade program.

E. Clean Development Mechanism and other offset programs

Although ARB states that it will consider allowing the use of credits from existing offset programs in the context of early action and additional offset protocols, the proposed regulation and staff report make no specific mention of potential linkages to the United Nations' CDM program. At a public hearing held in 2010, ARB noted that it will be selective in considering the types of CDM credits that may be used for compliance in CA, and that these could include credits from Least Developed Countries (LDCs) or from projects that reduce black carbon emissions.²³ It also noted the supply of CDM credits available to CA was unknown, given that the state would be competing for supply with the European Union, and that CDM credits posed monitoring and enforcement challenges for ARB.

²¹ The staff report provides an initial framework and criteria for REDD programs (pp. III-27, 28), including conservative emissions baseline estimates, and insurance mechanisms to protect against reversals.

²² <http://tropicalforestgroup.blogspot.com/2010/11/text-of-ca-chiapas-acre-mou-on-redd.html>

²³ ARB Public Meeting: Update on Offsets and Linkage in a California Cap-and-Trade Program, June 22, 2010, http://www.arb.ca.gov/cc/capandtrade/meetings/062210/0622_Offsets_and_Linkage_presentation.pdf

IV. Quantitative Offset Usage Limit

A quantitative limit applies to the use of offsets for compliance (including eligible early action offsets, offsets issued by ARB or by a program approved by ARB, sector-based offset credits, and offset credits from linked programs, such as those of WCI partner jurisdictions). Combined, these offsets may be used for up to 8% of each covered entity's annual or triennial compliance obligation.

The staff report indicates this limit would allow a **maximum of 232 MtCO₂e of offsets** to be used for compliance through 2020. Of this amount, 111 MtCO₂e (approximately 4% of emissions) is designed to provide compliance flexibility for covered entities. The remaining 121 MtCO₂e of the offset usage limit is associated with creation of the Allowance Price Containment Reserve (APCR), which was created by moving 121 MtCO₂e of allowances out of the allowance budget and into the reserve.

Under the cap-and-trade program, a total of 2,674 MtCO₂e of emissions allowances are expected to be issued, including the 121 MtCO₂e allowances to be placed in the APCR. Relative to anticipated baseline emissions of 2,948 MtCO₂e, the cap-and-trade program's cumulative required emission reduction is estimated to be about 274 MtCO₂e through 2020.

If *no* allowances are purchased from the APCR and the maximum quantity of offsets is submitted for compliance, the covered entities will be required to reduce emissions by 163 MtCO₂e through 2020, or about 59% of the total required abatement of 274 MtCO₂e. Offsets submitted for compliance would account for the remaining 111 MtCO₂e emission reductions required under the program (41%). The other 121 MtCO₂e of submitted offsets would take the place of an equal number of allowances remaining in the APCR in 2020.

If *all* the allowances available in the APCR are purchased and the maximum quantity of offsets is submitted for compliance, covered entities would be required to reduce emissions by only 42 MtCO₂e (i.e., 274 MtCO₂e total program abatement – 232 MtCO₂e offsets). Under these circumstances, the emission reductions at covered entities would account for 15% of required emission reductions (i.e., 42 MtCO₂e / 274 MtCO₂e), and offsets would account for 85% (i.e., 232 MtCO₂e / 274 MtCO₂e).

In addition, the proposed regulation would limit the total number of sector-based offset credits that may be used for compliance in the cap-and-trade system to 25% of the *overall* quantitative offset limit during the first and second compliance period, and 50% in all other periods. In an attachment to ARB's December 2010 resolution, ARB staff recommended a modification to the offset usage limit as it relates to sector-based offset credits. Under this approach, *entities* would be required to limit their use of these offsets to 25% of their compliance obligation during the first compliance period, and 50% in all other periods. This change differs from the approach in the proposed regulation in that the limit on the use of sector-based credits would be enforced at the level of each entity's compliance, rather than at a system-wide level. The modification also increases the limit to 50% in the second period rather than the third period, thereby providing additional flexibility. ARB staff notes that it does not plan to hold public workshops on this proposed modification.

V. Offset Supply Estimates, Offset Limits, and System-Wide Emissions-to-Cap Shortfalls

Barclays Capital recently estimated the cumulative supply of offsets from ARB-approved offset protocols, including early action offsets, can be expected to increase from approximately 5 MtCO₂ in 2011 to nearly 30 MtCO₂ in 2014.²⁴ When all CAR protocols (including those that haven't yet been reviewed and approved by ARB) are taken into account, the cumulative supply is estimated to increase to approximately 20 MtCO₂ in 2011 and nearly 90 MtCO₂ in 2014.²⁵

PointCarbon Thompson Reuters has estimated a cumulative total of 23 MtCO₂ of eligible "early action" offset credits could be generated between 2005-2014 from projects that are among the eligible categories of CAR offsets, including forestry (9.6 Mt CO₂), agricultural methane (9.5 Mt CO₂), and ODS (4 Mt CO₂).²⁶

Also, Bloomberg New Energy Finance (BNEF) recently estimated between 32.8-48.9 MtCO₂e of offsets could be generated using ARB-approved protocols in CP1 (2012-2014), and 42.4-60.1 MtCO₂ could be generated using the ARB-approved protocols plus additional offset project types.²⁷ Over the 2012-2020 period, BNEF estimated offset supplies could range between 46.3-146.0 MtCO₂e using ARB-approved protocols, and could be as high as 146.0-223.3 MtCO₂ based on the ARB-approved protocols plus additional offset project types.²⁸

Based on Barclays estimates, offset supply likely will be lower than the offset limit for the foreseeable future, and the offset limit will become significantly more constraining starting in the third compliance period (CP3: 2018-20), when the program's allowance shortfall will increase significantly. In the first compliance period (2012-14), the cap is forecast to be 1 MtCO₂ higher than emissions, while the offset limit will be 40 MtCO₂ and the supply of offsets is estimated to be 28 MtCO₂ (all figures are cumulative for the period, not annual).²⁹ In CP2 (2015-17), the program is forecast to be "short" 64 MtCO₂, the offset use limit will be 98 MtCO₂, and offset supply is estimated to be 46 MtCO₂.³⁰ In CP3 (2018-20), the program is forecast to be short 192 Mt CO₂, the offset use limit will be 98 MtCO₂, and offset supply is estimated to be 79 MtCO₂.³¹

However, based on BNEF's estimates, offset supplies in CP1 could exceed the allowed amount of offsets to be used for compliance, and for the 2012-2020 period offset supply could approach the total quantity of offsets allowed.

²⁴ Barclays Capital, Commodities Research, "I wish they all could be California," February 2, 2011, p.11, Figure 13.

²⁵ Ibid.

²⁶ "A Western carbon market: policy and political outlook," Carbon Market Research North America, webinar by PointCarbon Thompson Reuters, November 9, 2010, slide 21. Available online at http://www.pointcarbon.com/polopoly_fs/1.1484993!Post-election%20WCI%20Webinar%20Nov%202010.pdf (subscription required).

²⁷ "California offset supply forecast: known knowns and known unknowns, Bloomberg New Energy Finance, Carbon Markets Research Note, March 30, 2011, p. 14 (subscription required).

²⁸ Ibid., p. 15.

²⁹ Barclays Capital, Commodities Research, "I wish they all could be California," February 2, 2011, p.11, Figure 15.

³⁰ Ibid.

³¹ Ibid.

VI. Crediting Periods

The proposed regulation establishes ranges for offset project crediting periods. A range of 7-10 years is proposed for non-sequestration projects, based on ARB's view that this period is sufficient to attract investment for such projects. A range of 10-30 years is proposed for carbon sequestration projects. This longer period was chosen because sequestration projects achieve GHG removals over longer time periods, and because they require long-term investment.

If new regulations require reductions from activities and projects that already have begun to generate offset credits under a protocol approved by the Board, the projects are allowed to generate offset credits until the end of their crediting period. However, following adoption of any new regulation that requires emission reductions to be achieved by a particular activity, new offset projects for that activity no longer would be considered additional and would be ineligible.

Non-sequestration projects may be renewed two times, provided they continue to meet additionality requirements and use the most up-to-date version of an approved protocol. Sequestration projects may be renewed multiple times provided their combined crediting periods do not exceed 100 years.

The specific crediting periods for the approved offset protocols included in the proposed regulations are shown below:

- Urban forest projects: 25 years;
- ODS: 10 years (i.e., after a project is verified, offset credits are issued for all ODS emissions avoided by a project over a 10-year crediting period);
- Livestock digester projects: 10 years (i.e., 10 years following the project's commencement date).
- Forest projects: 25 years (i.e., after a successful initial verification, the project is eligible to receive offset credits for a period of 25 years following the project's commencement date). Monitoring, verification and replacement of carbon lost through reversals is required for 100 years following the last offset issuance.

VII. Additionality

To demonstrate additionality, offset projects using Board-adopted offset protocols must demonstrate their emission reductions are *real, permanent, verifiable, enforceable, and quantifiable*. All protocols include standardized methods to quantify emission reductions to simplify additionality determinations. They also include standard eligibility criteria to simplify additionality determinations, and monitoring and reporting requirements and methods for addressing leakage that are specific to each project type. Other additionality/eligibility criteria include the following:

- Reductions or "removal enhancements" (sequestered tons) must not be required by law, regulation or any legally binding mandate in the project's jurisdiction;
- Project commencement date occurs after December 31, 2006 (different commencement date restrictions apply to early action offset projects; see Section III.B.);

- Reductions or removal enhancements are not considered common practice, must exceed those that would otherwise occur in a conservative BAU scenario, and must exceed the project baseline calculated in the offsets protocol;³² and,
- Projects must fulfill all local, regional, and national requirements relating to environmental impact assessments that apply based on project location.

The staff report states that the additionality standard is intended to reflect the *most stringent regulatory or legal requirements* among the WCI partner jurisdictions, thereby removing any incentive to weaken or not strengthen such requirements to qualify more offset projects. This approach implies, for example, that if one WCI Partner directly regulates CH₄ emissions emanating from natural gas pipelines, then offset projects to reduce this type of fugitive emission would not be eligible to be used to create compliance offsets in CA.

VIII. Project Approval Process

A. Listing

The first step in ARB’s offset project approval process is “listing,” in which a project developer (“Offset Project Operator”) or an entity designated by the developer at the time of listing (“Authorized Project Designee”)³³ provides an initial submission of information on the project to ARB or an ARB-approved Offset Project Registry. Listing information is specified in each offset protocol.

As discussed in greater detail in Section IX, the proposed regulation allows approved third-party offset programs, known as Offset Project Registries, to take on many of ARB’s responsibilities in the project approval process, including listing offset projects; overseeing monitoring, reporting and verification activities; and issuing offset credits (although Registry credits must be exchanged for ARB credits to be used for compliance under the CA program).

Apart from its role in undertaking these activities, ARB’s role as the offset program administrator is to adopt compliance offset protocols; oversee monitoring, reporting and verification activities (including verifier training); make determinations on whether and how many ARB offsets should be issued; approve a sector-based crediting program in an eligible jurisdiction after public notice and public comment; perform required CEQA analyses; and, oversee Offset Project Registry activities.

To list a project, a project developer must register with ARB to open an account to hold compliance instruments, and must attest in writing to ARB, under penalty of perjury, that all listing information submitted is measured in accordance with the offset protocol, that it is true, accurate and complete, and that the developer is now subject to all regulatory requirements and enforcement mechanisms of the program. This attestation provides a basis for ARB to enforce its requirements.

Based on the staff report, if ARB or an Offset Project Registry (a “Registry”) determines the listing information is complete and the project “generally meets” requirements for additionality,

³² The staff report notes this requirement goes beyond some other offset programs, which only require that reductions not be required under law or regulation.

³³ In addition to being able to designate another entity to list the project, project owners may also assign ownership rights to credits to any other third party at the time of listing.

the project is listed as a “proposed project” or “proposed renewal” on the website. If a project is not approved for listing, the developer is notified by ARB or a Registry within 30 days. The status of listed projects is changed to “active” later in the process, after ARB or a Registry has issued offset credits to the project. Importantly, approval for listing is *not equivalent* to project approval, which occurs after an accredited verifier issues a positive or qualified positive offset verification statement (see discussion in subsections C and D below).

B. Monitoring and reporting and record retention

After projects are listed and begin (or continue) operation, the project developer or designee must submit an “Offset Project Data Report” covering a calendar year to ARB or a Registry on an annual basis. The exception to this requirement is urban forest projects, which are allowed to aggregate reductions by year and submit a report once every six years to reduce costs. The report summarizes project monitoring data and calculates GHG emission reductions achieved by the project during the reporting period. Specific reporting requirements are detailed in each of the compliance offset protocols. If a report is not submitted by April 1st of the year following the reporting year, emission reductions may not be credited for the period covered by the report. Upon submitting the report, project developers must sign an attestation certifying that the contents of the report are true, accurate and complete under penalty of perjury.

Information submitted in the report includes, but is not limited to, the following:

- Documentation of the project boundary, including the list of sources and sinks in the boundary and baseline;
- Calculation of the baseline, emissions, and reductions or enhancements;
- Fuel use and other underlying data used to calculate emissions;
- Documentation of the process for collecting fuel use or other underlying data;
- All analyses and testing-related documentation for material and sources used to project baseline emissions, emissions, reductions, including all model inputs used to quantify them and data used to assess their accuracy;
- Quality assurance and quality control (QAQC) information relating to such topics as measurement gaps, missing data substitution, calibrations or maintenance records for monitoring equipment, or models providing data for emissions;
- A detailed technical description of any continuous measurement/monitoring system;
- Raw and aggregated data from any measurement system;
- Documentation of changes over time;
- Log book information on tests, down-times, calibrations, servicing and maintenance for any measurement/monitoring equipment;
- For sequestration projects, documentation of inventory methodologies and sampling procedures, including all calculation methodologies and equations, and data related to plot sampling; and,
- Any other documentation required to be retained by a protocol.

Information included in the Offset Data Report must be retained for 5 years after the end of the crediting period or, for sequestration projects, 100 years after the project is issued its last offset credit. Project developers must be able upon request to provide all such documentation to ARB within 10 calendar days.

C. Verification

Verification is the process by which an independent third-party “verifier” reviews offset project information to ensure that claimed GHG emissions reductions have been achieved in accordance with the proposed regulation. A project developer is required to obtain services from an ARB-accredited verifier to verify its Offset Project Data Report. In the staff report, the ARB staff proposes that all projects, whether located within or outside of CA, be verified by an ARB-accredited verifier, and that ARB have the ability to audit all accredited verifiers.

Verification services may begin 10 working days after a Notice for Verification Services is received by ARB. They cover a calendar year and are performed annually, except in the case of sequestration projects, which generally require verification every six years. The verification statement prepared by the verifier must be received by ARB or an Offset Project Registry by October 1st of the year in which the Offset Project Data Report was submitted. If it is not received by that date, emission reductions included in the report will not be eligible to be issued offset credits. The proposed regulation restricts project developers from using the same verifier more than six consecutive years.

Under the proposed regulation, a verifier must prepare an Offset Verification Plan, which includes a variety of information including, but not limited to: information to provide an understanding of project boundaries, operations, baselines emissions, and emission reductions; information about personnel involved in preparing the Offset Project Data Report; information about data management systems, monitoring systems, or models used; and dates of proposed meetings, interviews and site visits.

Based on the Verification Plan, the verifier conducts a review of original documents and supporting data and performs at least one site visit every year (or, for sequestration projects, one site visit each year verification services are provided). The initial site visit involves reviews and assessments of elements such as project eligibility and additionality, baseline calculations and modeling, operations, data control systems, GHG measurement and monitoring techniques, and whether they conform to the offset protocol. Subsequent visits provide follow-up on these issues, and also consider data collection processes and management systems, sampling techniques, metering accuracy, QAQC processes and procedures, missing data procedures, and uncertainties. The verifier interviews personnel, makes direct observations of any equipment determined to be high-risk, and confirms the project conforms to all regulatory requirements.

Another element of verification is the Sampling Plan for Offset Project Data Reports. This plan includes a ranking of sources by contribution to emissions and by largest calculation uncertainty, and an associated list of sources targeted for data checks and document reviews; methods used to conduct data checks; a qualitative description of uncertainty risks relating to data acquisition equipment (e.g., the age of a meter), data sampling and frequency, and data processing and tracking. Based on the Sampling Plan, the verifier conducts data checks and keeps a log, ensuring that correct methodologies and emission factors have been applied, and that sufficient checks have been made to determine whether the Offset Project Data Report conforms to protocol requirements and reported reductions are free of “material misstatement.” A material misstatement is defined in the regulations as an error, omission, and/or misreporting which leads the verifier to believe that an Offset Project Data Report contains errors resulting in an overstatement of the reported total GHG emission reductions or removal enhancements by more

than 5%. Based on the review by the verifier, the project developer makes any possible improvements or corrections to the report.

The verification process culminates in the delivery of a verification statement. The statement is provided by the verifier to the project developer and ARB or an Offset Project Registry. In a “Positive Offset Verification Statement,” the verifier attests under penalty of perjury that the Offset Project Data Report is free of material misstatement and conforms to the protocol and verification requirements. In a “Qualified Positive Offset Verification Statement,” the verifier notes any non-conformances and confirms they don’t result in any material misstatement. If the verifier cannot attest that the report is free of material misstatement and conforms to the protocol and verification requirements, it issues an “Adverse Offset Verification Statement.” Before the verifier finalizes the statement, it must have a final discussion with the project developer (who must be given 10 working days to address issues before an adverse statement is issued), the statement must be reviewed within the verification body by an independent reviewer not involved in verification services for the developer, and the verifier must concur with the findings of the independent reviewer. A modified Offset Project Data Report may be submitted with the verification statement before the verification deadline, which is possible to extend under certain circumstances. The proposed regulations also include provisions to address cases in which a project developer disputes a verifier’s modifications to the report. In addition to the verification report, the verifier submits a detailed verification report to the project developer that includes the verification plan, sampling plan, issues log, and additional documentation.

In its oversight role, ARB plans to undertake random verifier audits and performance evaluations. Verifiers must demonstrate competence for the project types they seek to verify. ARB may require the verifier to provide any data used to generate the verification report, as well as the verifier’s detailed verification report, sampling plan and other supporting documentation. Verifiers are required to retain the Sampling Plan and all material used to prepare a verification statement for 10 years. ARB also may require a project developer to have a verification report reverified if it finds a high level of conflict of interest (COI) between the developer and the verifier, or if the verification fails an ARB audit.

The proposed regulation also includes detailed and extensive COI requirements for accredited verifiers and lead verifiers (i.e., the verifier’s team leader). Verifiers are responsible for informing ARB or an Offset Project Registry of any potential for COI. If ARB determines the risk of COI is medium or high and cannot be mitigated, the verifier cannot continue its services and may be suspended or have its accreditation revoked. If it discovers potential COI following a Positive or Qualified Positive Verification Statement, ARB may invalidate the statement and require reverification.

As noted above, ARB also is responsible for accrediting verifiers. The accreditation program in CA’s Mandatory Reporting Regulation will be modified to include accreditation of offset project verifiers. ARB also will offer training for verifiers, including general verification training, lead verifier training, COI assessment, and project type-specific training.³⁴ These requirements are based on guidance from such programs as the International Organization for Standardization (ISO). To ensure verifiers perform proper COI assessments before undertaking verification services, ARB plans actively to audit verifiers.

³⁴ The staff report states that sequestration projects are particularly complex and require special training for verifiers.

D. Offset credit issuance

While ARB may assign many of its programmatic roles to an approved Offset Project Registry, ARB alone serves as the ARB offset credit issuing body. Therefore, if a project has undertaken all of the previous steps through an ARB-approved Offset Project Registry, any offset credits issued by the Registry's must be converted into ARB credits for the project developer to use them for compliance in the CA program. This is discussed more below.

If ARB or an Offset Project Registry has listed a project, its emission reductions were issued a Positive or Qualified Positive Verification Statement, and it received the statement with an accompanying attestation by the verifier by the verification deadline, ARB or the Registry will issue offset credits equal to the reductions or removals verified in the Verification Statement. The initial crediting period begins on the date of the first verified emission reductions.

ARB will issue ARB credits, and the Registry will issue Registry credits (and change the project's listing status to "Active Project" or "Active Renewal") no later than 45 calendar days after they receive the Positive or Qualified Positive Verification Statement. ARB or the Registry will notify the project developer or relevant designee of the issuance within 15 days of issuing offsets. Within 15 days of this notification, ARB will transfer ARB offset credits into the Holding Account of the project developer or relevant designee. (Projects with Registry credits that seek issuance of ARB credits are discussed below.) Each offset credit is assigned a unique ARB serial number. It is then entered ("registered") into the registry system and subsequently the account of the registered owner of the offset credits, unless it is part of the set-aside that is placed in ARB's Forest Buffer Account for forestry projects. ARB offset credits may be sold, traded or transferred unless they have been retired or surrendered for compliance in any voluntary or regulatory program, reside in a Forest Buffer Account, or have been invalidated (see discussion on user liability in Section XI).

Offset projects submitted through a Registry that seek issuance of ARB offset credits must provide the following to ARB: (i) all of the required attestations by the project developer, verifier and lead verifier; (ii) the Offset Project Data Reports submitted to the Registry; (iii) the verification statement submitted to the Registry; (iv) the detailed verification report; and, (v) an attestation to ARB under penalty of perjury that all information provided for issuance of ARB credits is true, accurate and complete. Within 30 days of receiving these materials, ARB notifies the project developer whether the information is complete; additional provisions in the proposed regulations address how ARB may proceed when information is not complete. Within 30 days of determining the information is complete, ARB will issue offset credits. Credits issued from a project that is submitted through an Offset Project Registry must be retired from the Registry before ARB credits are issued.

IX. Role of Offset Project Registries

As described briefly above, the proposed regulation allows ARB-approved Offset Project Registries to undertake many of ARB's functions, including listing offset projects; overseeing monitoring, reporting and verification activities; and issuing offset credits (which subsequently must be exchanged for ARB credits to be used for compliance under the CA program).

The ARB staff report notes this approach allows ARB to take advantage of the resources and expertise of existing offset registries that meet ARB's standards while minimizing the administrative burden of the offsets program on ARB staff, and allows the program to be

deployed quickly to increase offset supply. While the proposed regulation suggests that offset protocols may set restrictions on which registries may be used for a given project type, none of the four protocols submitted with the proposed regulation include such restrictions.

The ARB's EO may approve Offset Project Registries that meet the following requirements:

- The Registry must be registered with ARB and apply for a Holding Account.
- The Offset Project Registry Approval Application must include information on any judicial proceedings and administrative actions filed against the Registry in the past 5 years, and documentation that the Registry carries least \$50 million of liability insurance, which it must maintain while providing registry services for ARB.
- The Registry must submit information regarding its staff and Board members, and various details on its procedures to screen and address internal conflicts of interest.
- The Registry must have a comprehensive registration requirement for all participants, track ownership and transactions of all issued credits at all times, and possess a permanent repository of ownership information on all issued credits from issuance to retirement, including prices and counter-parties.
- Its primary business must be operating a registry for voluntary or regulatory purposes, and it may not act as a developer, designee, consultant or verification body once it is approved as an Offset Project Registry.
- It must make several attestations under penalty of perjury to ARB relating to its operations (i.e., its participation is voluntary; it is subject to regulatory requirements and enforcement requirements; all information it submits to ARB will be true, accurate and complete; it commits to participate in all relevant ARB training; the authorized representative of the Registry attests that he/she has authority to represent the Registry and that all information provided in the application is true, accurate and complete).

Sixty days after receiving an application ARB will inform the Registry whether the information it submitted is complete, and after another 60 days the EO will make a determination on whether to approve the Registry. Approval is valid for 5 years, and may be modified, suspended or revoked. Project developers that submitted their projects to a Registry that subsequently was revoked must resubmit their project information to a new Registry or ARB.

Approved Registries are required to provide on their website basic listing information (name, location, operator, type, protocol, listing submittal date, initial or renewed crediting period) within 10 working days of the project's listing. For projects that have been issued a verification statement, the Registry must provide information on its website of the projects' annual baseline emissions, annual reductions, serial numbers of credits issued, total emission reductions by year, and verification statements for each year that reductions have been verified. The website also must clearly identify which projects are listed and submitting data reports. In addition, the Registry must apply COI requirements in assessing COI for verifiers. In cases where requirements in a protocol, the regulations or guidance are unclear, the Registry may provide guidance to project developers or verifiers, but must maintain all correspondence and records of communication on these topics. Requests for additional guidance from project developers must be submitted to ARB on a monthly basis.

The proposed regulation also stipulates that the Registry must audit at least 20% of annual verifications, and that audits be selected to provide a representative sampling of geographic locations, verifiers, project types and projects by size. The audit involves meeting with the

verification team on a site visit; participating in the first and last meeting between the verification team and the project developer; reviewing documentation of any findings leading the Registry to provide guidance or require corrective action; reviewing the detailed verification report and sampling plan to ensure they meet requirements; documenting any discrepancies found during the review; and, undertaking an investigative review of the COI assessment provided by the verifier. The Registry must make all information related to audits available to ARB within 10 days of an ARB request, and must provide a report to ARB on the Registry's audit program on an annual basis, as well as an annual report on the previous year's projects that are listed or active. It also must provide all information in its possession related to a listed project within 10 days of an ARB request, and make staff and information available during any ARB audits or oversight activities. As noted in Section VIII.D., the Registry must retire its credits once notified by ARB that credits for those emission reductions are eligible to be issued by ARB. Registries must retain all records for a given project for 5 years after the end of the crediting period for a non-sequestration project. For sequestration projects, the retention period is the length of time the project is issued credits plus 100 years.

X. Special Provisions for Forestry Projects

ARB requires that developers of sequestration projects permanently maintain GHG reductions to ensure permanence. In this context, the purpose of the Forest Buffer Account is to provide insurance for unintentional reversals – i.e., any reversal, including wildfires or disease, which is not the result of the developer's gross negligence or willful intent. The proposed regulation requires a portion of issued offsets from forest sequestration projects to be set-aside and placed into a Forest Buffer Account. The required set-aside percentage is determined based on methodologies in the U.S. Forest Projects protocol for calculating the project's risk rating. The offsets are transferred into the Forest Buffer Account at the time the offsets are assigned unique serial numbers and registered into their registry. If offset credits are registered by an approved Offset Project Registry, the appropriate portion must be transferred to ARB and placed into ARB's Forest Buffer Account, and the original credits must be retired by the Registry.

If a project developer discovers an *unintentional reversal* has taken place, it must notify ARB in writing within six months of this discovery, and provide ARB with an explanation of the nature of the reversal and a verified estimate of current carbon stocks within boundary within one year. If ARB determines that an unintentional reversal has occurred, and if the reversal reduces live carbon stocks to a level below the project baseline, ARB will automatically terminate the project, and the reversal must be compensated by the Forest Buffer Account (i.e., the appropriate number of offset credits will be retired from the Account, whether or not they have already been used or retired within the system). In such cases, another project may be initiated within the same project boundary. If the reversal reduces live carbon stocks to a level that is above the baseline, the reversal must be compensated by the Forest Buffer Account, and the project may continue.

In the case of *intentional reversals*, the project developer must provide ARB with notice within 30 days of the reversal, and a written description and explanation. After ARB makes a determination that a reversal has occurred, it notifies the project developer in writing. The project developer must replace all the credited carbon that has been reversed within 30 days of this notification, whether or not the credits have been retired within the system. If all credits have not been replaced within 30 days, each outstanding offset credit constitutes a violation (see additional discussion in Section XII on enforcement.) In addition, the developer must submit a

verified estimate of current carbon stocks within the project boundary within three months of notification from ARB. Projects that experience intentional reversals are terminated automatically, and new projects may not be initiated within the same project boundary.

XI. User (aka “Buyer”) Liability

The ARB has proposed a “buyer liability” approach to deal with instances of fraud or other errors related to offsets for all offset project types, and a “seller liability” approach to address intentional reversals in forest carbon sequestration projects as described above.

The proposed regulation stipulates that issued offset credits are valid until they are retired or surrendered for compliance, unless they are “invalidated” by ARB. When offset credits are invalidated, they are to be cancelled by ARB and removed from any Holding or Compliance account or the Forest Buffer Account. The holder, user or retiree is notified at the time of ARB’s determination as well as any program approved by ARB for linkage.

A. Conditions for invalidating approved CA offsets

Forest sequestration reversals

With regard to forest carbon projects as discussed above, ARB may invalidate offset credits due to reversals. ARB proposes to retire offsets in the Forest Buffer Account to compensate for *unintentional reversals*.

For *intentional reversals*, the project developer (i.e., the seller of the offset credits) must replace all the credited carbon sequestration that has been reversed within 30 calendar days of notification. The staff report notes that this *seller liability* approach for forest projects is being proposed “...because the risk of reversal is more prevalent. Buyers will have little incentive to invest in forestry projects if the liability falls back to them. Instead they will pursue projects with more certain emissions reductions.”³⁵

Fraud and errors

ARB also may invalidate offset credits if it “...determines that errors by verifiers, verification bodies, Offset Project Operators, Authorized Project Designee, or others involved in producing the documentation used to support the issuance of offset credits are sufficient to warrant a reversal.”³⁶

The staff report describes such errors as fraud or malfeasance on the part of any of these entities. If an offset credit is invalidated for these reasons and the credit is still in a Holding or Compliance account, it will be cancelled and removed. If a compliance entity already has retired or used the credit for compliance, that entity has 30 calendar days to replace the credit with an allowance or offset credit. However, if the user or retiree of the invalidated offset credit is no longer in business, the replacement obligation shifts to the relevant Offset Project Operator or Authorized Project Designee.

³⁵ California Environmental Protection Agency, Air Resources Board, “Proposed Regulation to Implement the California Cap-and-Trade Program, Part I, Volume 1, Staff Report: Initial Statement of Reasons,” Release Date: October 28, 2010, p. III-20, <http://www.arb.ca.gov/regact/2010/capandtrade10/capisor.pdf>.

³⁶ Proposed California cap-and-trade regulation, Section 95985, <http://www.arb.ca.gov/regact/2010/capandtrade10/capv1appa.pdf>.

As noted in the staff report, offset contracts between offset buyers and sellers may address potential invalidation, and buyers may be able to take appropriate action against sellers pursuant to such arrangements. It also notes that such contracts exist in the voluntary offset market, and that a standardized contract for third-party liability may emerge as the offset market evolves.

For any of the scenarios for which ARB requires offset credits to be replaced, failure to do so within 30 days will constitute a violation for each outstanding offset credit (see discussion on enforcement in Section XII).

Several key aspects of the ARB's liability approach are important to note:

- Although ARB's regulations anticipate errors would be caused by entities actually involved in developing and documenting offset projects (i.e., project developers or verifiers), it imposes replacement liability on the holders or users of credits. Replacement liability falls on the project operator only if the holder or user is out of business.
- Liability is not limited just to cases of fraud, but also can be triggered by any "error."
- The proposed regulations do not establish any materiality threshold for the level of error that may trigger liability. In theory, even a one ton discrepancy could trigger liability.
- There is no statute of limitations on replacement liability.

B. Rationales for ARB's liability approach

ARB staff has offered several rationales for the proposed user liability approach.

First, ARB has emphasized that the AB-32 emission caps are required by statute, while the cap-and-trade program is a discretionary agency approach to achieve the cap. As such, ARB maintains it cannot risk any potential shortfall in offsets that might endanger the environmental integrity of the cap. According to ARB staff, if offsets issued under their program turn out not to be real they must immediately be revoked and replaced.

Second, ARB staff appears to strongly prefer a liability system in which ARB can pursue compliance entities with whom it has long-standing, in-state ties, rather than a system which might require the agency to pursue project developers out of state or in other countries.

ARB's desire to avoid prosecuting out-of-state project developers appears to be somewhat inconsistent with the proposed offset rules, which require all parties submitting documentation related to a project to attest to ARB that they are subject to all regulatory requirements and enforcement mechanisms of the cap-and-trade program.³⁷ Moreover, ARB's staff report explains "this provision is necessary to ensure the party responsible for listing the project acknowledges that they are subject to all cap-and-trade regulatory and enforcement requirements and that ARB has a legal and enforcement connection to those involved in offset projects."³⁸

C. Potential impacts of buyer liability on secondary offset markets

As noted above, ARB notes that buyers and sellers in voluntary offset markets have been able to address liability issues through contractual arrangements. However, some market participants have argued the proposed buyer liability approach may impact negatively the evolution of the

³⁷ Section 95975(b)(2).

³⁸ See ARB staff report, section IX-125.

CA offsets market, and particularly the market for *secondary* offset credits. The secondary market involves transactions of offsets that already have been issued or for which a delivery guarantee has been made. Importantly, the seller of an offset in a secondary market transaction in many cases is not the original owner of the carbon asset. The other type of offset market is the *primary* market, which involves direct transactions between buyers and offset project owners.

To provide context on secondary offset markets, it is useful to consider CDM credits, for which there is a well-developed secondary market. Secondary offsets are attractive to buyers of CDM offset credits (called “Certified Emission Reductions” (CERs)) because typically they can be purchased cheaper than an EU CO₂ emissions allowance, but embody only marginally greater risk. This is because secondary CERs typically are sold by creditworthy sellers who guarantee delivery of a valid compliance instrument, and because exposure to credit risk in forward transactions is limited due to the short-term nature of the transaction from contracting to settlement. However, some argue that in the future CA secondary offset market, the potential for issued credits to be invalidated and for the buyer to be required to replace the offsets could significantly reduce buyers’ interest in secondary offsets as an alternative to CA emission allowances, which do not carry a similar risk.

Buyers who avoid secondary markets would not be able to take advantage of the potential cost savings between secondary offsets and allowances. Furthermore, the risk that issued offsets may be invalidated may create market dynamics that could exacerbate the risk associated with secondary offsets, particularly those sold on exchanges. Sellers of exchange-traded secondary offsets are anonymous, so buyers will not be able to undertake due diligence to assess the risk that the underlying project’s offsets could be invalidated. Under these circumstances, buyers might adopt a cautious approach and simply assume there is a significant risk of invalidation, and so would discount secondary offsets accordingly. This approach might be sensible, as sellers that hold offsets with greater-than-average risk of being invalidated might be attracted to using anonymous, exchange-based secondary markets to sell their offsets. On the other hand, highly credit-worthy sellers of offsets with lower-than-average risk of being invalidated would seek to sell their offsets in direct, bilateral transactions to capture a premium for their lower risk.

If these market dynamics developed, the size of the secondary market and the role of secondary offsets as a compliance option would diminish, and risks to offset buyers would increase relative to a “seller liability” scenario. This could motivate some buyers to forgo offsets in favor of higher-priced allowances, thereby increasing the costs of the cap-and-trade program as a whole.

D. Alternatives approaches to offset liability

A variety of offset market participants are concerned that ARB’s proposed buyer liability approach may be detrimental to the development of a robust secondary market in offsets in CA, and may lead to higher compliance costs for regulated firms operating in the State. In response to ARB’s proposed buyer liability approach, a variety of alternative liability approaches have been suggested for further consideration, including:

- “Holdback” discounts on offset issuance;
- Insurance for offset projects; and,
- Allowance set-asides.

Each of these suggested approaches is discussed briefly below.

In addition, offset market participants also have suggested that ARB first seek replacement offset credits from the entity actually responsible for fraud or errors before taking other actions.

Market participants also have suggested ARB assess liability only for actual fraud and malfeasance, rather than for non-material errors. These participants also have suggested that if ARB's offset rules must cover "errors," it would be helpful if ARB could provide clear materiality thresholds and conditions to define material errors, so general discrepancies, numerical errors, or other "minor" mistakes are not subject to the formal liability provisions.

Market participants also have suggested that ARB consider specifying a statute of limitations for errors that might be cause for ARB to invalidate issued offset credits. These parties have voiced the concern that the lack of a defined statute of limitations will make it very difficult for offset projects to obtain financing and for offset credits to be traded in secondary markets.

Hold-back discounts on offset issuance

One alternative that has been suggested to address offset liability might be for ARB to hold back a specified percentage of offsets at the time offsets are to be issued for qualifying emissions reductions, and to place these held-back offsets in an offset liability buffer pool. In the event ARB determined specific offsets should be invalidated for fraud – and if the defrauding party could not be found and prosecuted – offsets would be removed from the buffer pool and provided to ARB in exchange for the invalidated credits.

This approach may not be viewed favorably by project developers for two reasons. First, the additional discount would directly and adversely affect their economic interest, and would occur on top of a myriad of other process steps that are viewed by developers as already being the cause of significant offset discounts and administrative costs to develop and implement projects. Additionally, such an approach effectively would penalize all project developers for the potential fraud or errors that might be committed by a small number of potential "bad actors."

For CA regulators, this approach also may be challenging to implement as it would require ARB to estimate the correct size of the buffer pool and necessary holdback discount. In addition, ARB would need to determine what to do with any "unused" offsets remaining in the buffer pool once the statute of limitations expired, assuming ARB were to adopt one. One possible approach to distribute unused offsets could be to return them to the Holding Account of the original project developer, or ARB could return a portion of the unused offsets to the Holding Account of the original project developer, and retire another portion for the benefit of the atmosphere.

A slightly different approach would be for ARB to allow each ARB-approved offset registry to assess the holdback discount rather doing so itself. By delegating this authority to the registries, ARB may reduce the resources it needs to implement the offsets program. This approach also would create two layers of oversight. The registries would have principal authority to implement offset holdback discounts, and would be backstopped by ARB oversight.

Offset insurance

Another approach that has been suggested would be to require offsets providers to have adequate insurance to be accredited by ARB to provide compliance offsets in the CA program. Several offsets registries currently have some insurance protection focused on other areas of their business, so they may be able to extend their umbrella to cover fraud and material error.

In general, most stakeholders involved in the offsets market – especially offset developers with long experience in the CDM – believe offset project-related insurance would be extremely expensive to obtain – if it were available at all – and highly uncertain. This uncertainty relates directly to the difficulty insurers face in trying to accurately assess the necessary insurance premiums to be charged. To date, it has been extremely difficult to engage insurance companies directly in providing cost-effective insurance for offsets projects. If covered entities are likely to have some difficulty quantifying their potential exposure to ARB’s buyer liability provisions, it is also likely that it would be difficult to systematize insurance in this context.

Allowance set-aside

Another approach suggested by some market participants would be to create an offsets liability buffer pool by setting aside a small number of allowances from the cap-and-trade program.

One way this could be implemented would be to place some allowances from the cost-containment allowance reserve into an offset liability buffer pool. Under this approach, if the defrauding party cannot be found and effectively prosecuted, a compensating number of emission allowances would be removed from the buffer pool – or alternatively directly from the allowance reserve – to replace invalidated offsets. While this approach may appeal to some market participants, it is likely to be of great concern to regulated entities who will face allowance shortfalls and who will not want to see the number of allowances allocated in the cap-and-trade program reduced to backstop the offsets program.

Another approach to create an allowance-based buffer pool could be to create a “forward-looking” offset liability buffer pool. Using this approach, any invalidated offsets would be replaced by allowances removed from the emissions cap for the following year.

For example, if year 1 offsets were invalidated, an equal number of allowances could be removed from the allowance pool for year 2. At the end of the current cap-and-trade program in 2020, any charges to the offset liability buffer pool for that year could be “trued-up” using allowances remaining in the cost-containment allowance reserve, or ARB could assign the balance against the next period of the cap-and-trade program post-2020. Regardless, this approach also likely would face significant opposition by covered entities who expect to experience allowance shortfalls.

Other market participants have pointed out that setting aside allowances to backstop offsets indirectly would punish allowance buyers for potential problems outside of their control caused by offset developers and verifiers, and so may create equity concerns. In addition, an allowance set aside can be viewed as providing free insurance to project developers and verifiers who may be responsible for potential invalidation.

XII. Enforcement and Penalties

ARB has authority under provisions in CA’s Health and Safety Code to enforce and set penalties for violations of its regulations. Provisions in the proposed regulations ensure that entities and people (including those not located in CA) engaging in any of a range of activities linked to CA’s cap-and-trade program are subject to the jurisdiction of the state of CA, including but not limited to ARB’s administrative authority. These activities include registering for an ARB account; purchasing and holding ARB compliance instruments; receiving any kind of

compensation from any transfers of allowances or credits issued by ARB or recognized by ARB (e.g. early action offset credits from approved third-party programs, or sector-based offset credits from approved programs); or verification of an offset credit to be issued by ARB.

As noted in Section III.B, entities that do not submit a sufficient number of compliance instruments to cover all of their emissions are required to surrender four allowances for every ton of excess emissions, and will face other penalties. The enforcement provisions further stipulate that if a covered entity fails to surrender a sufficient number of compliance instruments, this constitutes a separate violation for each required instrument not surrendered. In addition, each day or portion of a day after the compliance date that each required compliance instrument has not been surrendered constitutes a separate violation.

In addition to these penalties, ARB may limit the ability of a registered entity to fully participate in the market if it violates provisions of the regulations. With respect to voluntarily associated entities (i.e., non-covered entities that seek to voluntarily retire compliance instruments in the cap-and-trade program), ARB's EO may suspend, revoke, or place transaction restrictions on the Holding Accounts of violators. For covered entities, transaction restrictions may be placed on the Holding Accounts of violators. For other registered participants (e.g. verifiers, Offset Project Registries), their registration may be revoked if they violate the regulations. Finally, the EO has the authority to suspend, revoke, or modify an existing Executive Order providing approval to an Offset Project Registry.